Observations of a Freshwater Tidal Plume by Salinity Remote Sensing

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We report simultaneous observations on consecutive days of the freshwater plume outflow from Apalachicola Bay (Florida) and its characteristics using STARRS (Salinity, Temperature and Roughness Remote Scanner) and in situ observations from August, 2002. STARRS is an airplane mounted passive microwave sensor. It is used here to rapidly map the bay and freshwater outflow. Waters in the outer part of Apalachicola Bay are contained by barrier islands with a few narrow passages between them. Flow of water through these passages is modulated by the tides. After the freshwater has been held inside the barrier islands by the tide, it is released as a pulse that spreads from the release point (West Pass) and flows along the barrier islands. Differences between the outflows on consecutive days appear to be due to substantially different winds on the two days.